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Automatic electrical controls - Part 2-23: Particular requirements for electrical sensors and sensing elements

Táto norma obsahuje anglickú verziu európskej normy.

This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 10/25

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN IEC 60730-2-23

June 2025

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English Version

**Automatic electrical controls - Part 2-23: Particular requirements
for electrical sensors and sensing elements
(IEC 60730-2-23:2025)**

Dispositifs de commande électrique automatiques - Partie
2-23: Exigences particulières pour les capteurs électriques
et les éléments sensibles
(IEC 60730-2-23:2025)

Automatische elektrische Regel- und Steuergeräte - Teil 2-
23: Besondere Anforderungen an elektrische Sensoren und
Sensorelemente
(IEC 60730-2-23:2025)

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European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

EN IEC 60730-2-23:2025 (E)**European foreword**

The text of document 72/1477/FDIS, future edition 1 of IEC 60730-2-23, prepared by TC 72 "Automatic electrical controls" was submitted to the IEC-CENELEC parallel vote and approved by CENELEC as EN IEC 60730-2-23:2025.

The following dates are fixed:

- latest date by which the document has to be implemented at national (dop) 2026-06-30 level by publication of an identical national standard or by endorsement
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Endorsement notice

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Annex ZA (normative)

Normative references to international publications with their corresponding European publications

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

NOTE 1 Where an International Publication has been modified by common modifications, indicated by (mod), the relevant EN/HD applies.

NOTE 2 Up-to-date information on the latest versions of the European Standards listed in this annex is available here: www.cencenelec.eu.

Annex ZA of Part 1 is applicable except as follows.

Addition:

<u>Publication</u>	<u>Year</u>	<u>Title</u>	<u>EN/HD</u>	<u>Year</u>
IEC 60730-1	2022	Automatic electrical controls - Part 1: General requirements	EN IEC 60730-1	2024
IEC 60751	2022	Industrial platinum resistance thermometers and platinum temperature sensors	EN IEC 60751	2022



IEC 60730-2-23

Edition 1.0 2025-05

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Automatic electrical controls –

Part 2-23: Particular requirements for electrical sensors and sensing elements

Dispositifs de commande électrique automatiques –

Partie 2-23: Exigences particulières pour les capteurs électriques et les éléments sensibles

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IEC Secretariat
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
info@iec.ch
www.iec.ch

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

AUTOMATIC ELECTRICAL CONTROLS –**Part 2-23: Particular requirements for electrical sensors and sensing elements****FOREWORD**

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IEC 60730-2-23 has been prepared by IEC technical Committee 72: Automatic electrical controls. It is an International Standard.

The text of this International Standard is based on the following documents:

Draft	Report on voting
72/1477/FDIS	72/1481/RVD

Full information on the voting for its approval can be found in the report on voting indicated in the above table.

The language used for the development of this International Standard is English.

This document was drafted in accordance with ISO/IEC Directives, Part 2, and developed in accordance with ISO/IEC Directives, Part 1 and ISO/IEC Directives, IEC Supplement, available at www.iec.ch/members_experts/refdocs. The main document types developed by IEC are described in greater detail at www.iec.ch/publications.

A list of all parts of the IEC 60730 series, under the general title: *Automatic electrical controls*, can be found on the IEC website.

This part 2-23 is intended to be used in conjunction with IEC 60730-1. It was established on the basis of the publication of the sixth edition of IEC 60730-1:2022.

This part 2-23 supplements or modifies the corresponding clauses in 60730-1:2022, so as to convert that publication into the IEC standards: Safety requirements for electrical sensors and sensing elements.

When a particular subclause of Part 1 is not mentioned in this Part 2, that subclause applies.

Where no change is necessary, this part 2-23 indicates that the relevant clause or subclass in IEC 60730-1 applies.

In this publication:

- 1) The following print types are used:
 - *test specifications: in italic type;*
- 2) Subclauses, notes or items which are additional to those in Part 1 are numbered starting from 101, additional annexes are lettered AA, BB, etc.
- 3) Words in **bold** in the text are defined in Clause 3.

Sensor manufacturers may refer to this Part 2 as a template to understand how to apply the relevant clauses in IEC 60730-1 and to begin designing sensors and sensing elements and apply these requirements for their devices.

The committee has decided that the contents of this document will remain unchanged until the stability date indicated on the IEC website under webstore.iec.ch in the data related to the specific document. At this date, the document will be

- reconfirmed,
- withdrawn, or
- revised.

AUTOMATIC ELECTRICAL CONTROLS –

Part 2-23: Particular requirements for electrical sensors and sensing elements

1 Scope

This clause of Part 1 is applicable except as follows.

Replacement:

This part of IEC 60730 applies to the safety of electrical, electro-mechanical and electronic **sensors** including **sensing elements** and any conditioning circuitry. **Sensors** covered under the scope of this document serve only to transform an activating quantity into a usable output and do not perform a control **operation** as defined in IEC 60730-1.

This document applies to **sensors** in so far as defining the reliability and accuracy of their inherent operating characteristics and corresponding response under normal and abnormal conditions within the **sensor**. **Sensors**, as defined herein, are used in or as part of an automatic electrical control or as independently mounted devices in connection with controls and control systems.

The use of this document for other applications in which **sensors** are used is possible provided that the appropriate safety is maintained as defined by the end product standard. This document applies to discrete **sensors** constructed of, but not limited to, conductive or semiconductive substrate, for the detection of activating quantities such as voltage, current, temperature, pressure, **humidity**, light (e.g. optical), gasoline vapours, and the like.

NOTE 1 Future consideration will be given to other **sensor** technologies such as chemical, mechanical and micro-electromechanical systems (MEMS), along with other activating quantities like mass flow, liquid, movement, weight, vibration, or other as needed.

This document applies to **sensing element(s)** as well as any electronic hardware, software, or other conditioning circuits that are inherent to the **sensor** and relied upon to reliably transform the input **signal** into a useable response **signal** (output) for functional safety purposes. Conditioning circuits that are inseparable from the control for which the **sensing element** relies upon to perform its desired function are evaluated by the requirements of the relevant control Part 2 standard and/or IEC 60730-1.

NOTE 2 Additional requirements can be also applied by the application standard in which the **sensor** is used.

Throughout this document, whenever it is indicated that the IEC 60730-1 requirements are applicable, the term "control(s)", is replaced by the term "**sensor(s)**", and the term "equipment" is replaced by the term "control", as they are used in IEC 60730-1, respectively, unless otherwise specified herein.

This document does not apply to **sensors** explicitly described in another relevant part 2 of the IEC 60730 series.

NOTE 3 For example, a flame **sensor** as described in IEC 60730-2-5.

2 Normative references

This clause of Part 1 is applicable except as follows.

Addition:

IEC 60730-1:2022, *Automatic electrical controls – Part 1: General requirements*

IEC 60751:2022, *Industrial platinum resistance thermometers and platinum temperature sensors*

koniec náhľadu – text ďalej pokračuje v platenej verzii STN